Venture Oil and Gas, Inc.
Black Stone 4-4 No. 1 Oil and Gas Production Facility
Facility No.: 502-0095
Atmore, Escambia County, AL

ENGINEERING ANALYSIS

PROJECT DESCRIPTION

On June 4, 2010, the Department received an air permit application from Venture Oil and Gas, Inc. (Venture) regarding the permitting of the proposed Black Stone 4-4 No. 1 Oil and Gas Production Facility (Black Stone well). The proposed well would be located just north of the intersection of Booneville Road and Chester Road in Atmore, Escambia County, AL (NW/4 Section 4, Township 2 North, Range 5 East).

The proposed well is expected to produce about 300 barrels per day (BOPD) of oil initially and 306.6 MMscf/yr of sour natural gas containing a hydrogen sulfide (H_2S) content of approximately 4 mol%. The sour natural gas would be transported to the Flomaton Gas Plant via a 12 mile pipeline for treatment and processing.

PROCESS DESCRIPTION

The produced well stream will consist of a crude oil, saltwater and sour natural gas mixture. The well stream will flow through a line heater and then on to a high pressure (HP) separator for two phase separation. The streams exiting the high pressure separator will consist of a mixture of crude oil and saltwater and high pressure gas. The gas stream exiting the HP separator would be sent through a flare gas scrubber, metered, and would either be sent to the gathering line for transport to a gas processing plant or sent to the emergency flare for combustion. The flare would only be used during periods in which gas could not be sent to the processing plant, when depressurizing emission sources, or during a malfunction or upset event.

The mixture of crude oil and water from the HP separator would then be sent through a heater treater where a crude oil stream, a saltwater stream, and a sour natural gas stream would be produced. The crude oil and saltwater streams would be sent to their respective storage tanks until sold or transferred. Vapors from the storage tanks would be compressed using an electric gas compressor, sent through the flare gas scrubber, metered, and would either be sent to the gathering line for transport to a gas processing plant or sent to the emergency flare for combustion.

The facility will consist of the following emission sources:

- 0.5 MMBtu/hr heater treater
- 0.5 MMBtu/hr line heater
- Emergency Flare
- Storage Tanks with vapor recovery unit (VRU)
    - Three (3) 16,800 Gallon Crude Oil Storage Tanks
    - One 16,800 Gallon Saltwater Storage Tank
    - One 21,000 Gallon Power Oil Storage Tank

EMISSIONS

The potential and expected emissions from the facility are given in Table 1 below. The potential emissions are based on continuous flaring of the 306.6 MMscf/yr of sour natural gas produced. The expected emissions are based on flaring only 72.5 MMscf/yr of the produced sour gas per year in the emergency flare. The facility requested to limit the volume it would be allowed to be flared to prevent it from exceeding the 250 TPY threshold for PSD. A 245 TPY limit has been requested by the facility for SO_2 emissions. The potential emissions should not be expected to ever be met since the flare would only be used during emergencies and should not be operated as a process flare.

POTENTIAL EMISSIONS
(Tons/year)

EMISSION SOURCES	PM	SO_2	NO_X	CO	VOC
LINE HEATER	0.01	0.00	0.34	0.05	0.01
HEATER TREATER	0.01	0.00	0.34	0.05	0.01
EMERGENCY FLARE	-	1,035.10	11.11	60.44	4.94
TOTAL POTENTIAL	**0.02**	**1,035.10**	**11.78**	**60.53**	**4.96**

EXPECTED EMISSIONS
(Tons/year)

EMISSION SOURCES	PM	SO_2	NO_X	CO	VOC
LINE HEATER	0.01	0.00	0.34	0.05	0.01
HEATER TREATER	0.01	0.00	0.34	0.05	0.01
EMERGENCY FLARE	-	245.00	2.63	14.30	1.17
TOTAL EXPECTED	**0.02**	**245.00**	**3.30**	**14.39**	**1.19**

Table 1- Potential vs. Expected Emissions

REGULATIONS

There are several possible regulations that could apply to the facility's emissions sources:

State Regulations

ADEM 335-3-4-.01(a) and (b) Visible Emissions, Control of Particulate Emissions

ADEM 335-3-4-.01(a) states that no person shall discharge into the atmosphere from a source of emission, particulate of an opacity greater than that designated as twenty percent (20%) opacity, as determined by a six minute average.

ADEM 335-3-4-.01(b) states that during one six minute period in any sixty minute period a person may discharge into the atmosphere from any source of emissions, particulate of an opacity not greater than that designated as forty percent (40%) opacity.

These regulations would apply to all emission sources located at this facility. Provided that visible emissions are observed that results in an exceedence of these opacity standards a visible emission observation using either EPA Method 9 or Method 22 shall be performed.

ADEM 335-3-4-.03, Fuel Burning Equipment

This regulation covers particulate emissions (PM) from fuel burning equipment. The 0.5 MMBtu/hr line heater and the 0.5 MMBtu/hr heater treater would be subject to this regulation. The facility plans to use propane as the primary fuel for these units with natural gas being used as a back up. Even though these units would be located in a Class 2 County, their PM emissions can not exceed the allowable for a Class 1 County since these units would be new fuel-burning sources emitting particulate matter.

The PM allowable for each unit would be 0.5 lb/MMBtu (approximately 1.095 TPY). Based on the PM emissions found in Table 1, the facility would not be expected to exceed this allowable. Therefore, no monitoring would be required for this regulation.

ADEM 335-3-5-.01(b), Fuel Combustion

This regulation covers fuel combustion sulfur limitations for Category II counties, which includes Escambia County. Under this regulation, the 0.5 MMBtu/hr line heater and 0.5 MMBtu/hr heater treater would not be allowed to emit more than 4.0 lb/MMBTU of sulfur compounds (approximately 2 TPY). Based on the emissions found in the emission section, the facility should not be expected to exceed this allowable; therefore, no monitoring would be required for sulfur dioxide (SO_2) emissions from these units.

ADEM 335-3-5-.03(1-2), Petroleum Production

These regulations would require that process gas streams containing greater than 0.10 grains per standard cubic foot (scf) of hydrogen sulfide (H_2S) be properly burned to maintain a ground concentration of less than 20 ppb beyond property limits, as averaged over a 30 minute period. Since the gas stream that could be sent to the emergency flare would contain greater than 0.10 grains/scf of H_2S (~160 ppmv H_2S), this unit would be subject to this regulation.

The emergency flare would be expected to burn the sour gas stream containing 40,000 ppmv (4 mol%) of H_2S. In order to ensure that the gas is properly burned, there must be a flame or a spark present at the flare tip at all times in which the sour gas stream could be sent to the flare. The facility would be required to perform a daily inspection of the flare tip and record the results of each daily inspection. The sour gas stream would also be tested for its H_2S content no less than once a month.

ADEM 335-3-14-.04 Prevention of Significant Deterioration (PSD) Permitting

This regulation applies to the construction of any new major stationary source or any project at an existing major stationary source. The Black Stone 4-4 well would be a new stationary source. Because the potential emissions from this well would be expected to exceed the 250 TPY PSD threshold for this type of facility as shown in Table 1, it would be considered a major source under this regulation. However, Venture has requested a 245 TPY facility-wide limit for sulfur dioxide emissions (SO_2) in order to maintain emissions below the major source threshold and be considered a minor source with respect to PSD regulations. To demonstrate the 245 TPY SO_2 limit is being met, the facility would be required to maintain a 12 month rolling total of the volume flared, maintain the number of flaring hours, and test the well for its H_2S concentration on a monthly basis.

ADEM 335-3-16 Major Source Operating Permit

The potential uncontrolled emissions for the plant are found in the emissions' section. The Black Stone well would have the potential to emit greater than 100 tons per year of criteria pollutants; however, it would not be expected to emitted 10 tons per year (TPY) of a single hazardous air pollutant (HAPs), or 25 TPY of combination of HAPs. Since the Black Stone well would be a major source of criteria pollutants as shown in Table 1, it would be subject to the requirements under this regulation. Within one year after the facility commences operation, it would be required to submit an application to the Department for a Major Source Operating Permit (MSOP) or request enforceable limits in order to become a Synthetic Minor Operating Permit (SMOP).

Air Toxic Program

No Air Toxics review would be warranted due to the relatively low amount of HAPs emissions expected from this facility.

Class I Area

The nearest Class I Area to this well site would be the Breton Wildlife Refuge; however, the well would be located more than 100 km from this area.

Federal Regulations

40 CFR 60, Subpart A General Provisions

The proposed facility would be subject to the requirements of this subpart provided that it is subject to the applicable requirements of one of the subparts found in 40 CFR Part 60.

40 CFR 60, Subpart K_b, "Standards of Performance for Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels) for which Construction, Reconstruction, or Modification Commenced After July 23, 1984"

The three 16,800 gallon crude oil storage tanks and the 21,000 gallon power oil storage tank would be subject to this regulation. However, §60.110b (d)(4) states that vessels with a design storage capacity of less than, or equal to, 1590 m^3 (420,000 gallons) used for petroleum or condensate stored, treated, or processed prior to custody transfer are exempt from this regulation. Therefore, these storage tanks would not have to meet any applicable requirements under this subpart.

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40 CFR 63, Subpart A, "General Provisions"

The proposed facility would be subject to the requirements of this subpart provided that it is subject to the applicable requirements of one of the subparts found in 40 CFR Part 63.

40 CFR 63, Subpart HH, "National Emission Standards for Hazardous Air Pollutants from Oil and Natural Gas Production Facilities

This subpart applies to facilities that are a major source or area source of HAPs (§63.760(a)(1)) and either process, upgrade, or store hydrocarbon liquids prior to the point of custody transfer (§63.760(a)(2)) or process, upgrade, or store natural gas prior to the point at which natural gas enters the natural gas transmission and storage source category or is delivered to a final end user (40 CFR §63.760(a)(3)).

As shown in the emissions' section, the total HAPs from this facility would not be expected to exceed either of the major source thresholds for HAPs. A major source of HAPs requires a potential to emit 10 TPY of one HAP or 25 TPY of a combination of HAPs (§63.2). Since the well is not a major source of HAPS it would be consider an area source of HAP and would be subject to this subpart.

In order for this well to have an affected source under this subpart for an area source, it would have to be equipped with a tri-ethylene glycol (TEG) dehydration unit (§63.760(b)(2)). This well site would not be equipped with a TEG unit; therefore, there would not be any applicable requirements under this regulation for this facility.

Recommendations

Provided that no comments are received after the required Greenfield Site 15 day public comment period has ended, I recommend that Venture Oil and Gas, LLC be issued Air Permit No.: 502-0095-X001 for the proposed Black Stone 4-4 No. 1 Oil and Gas Production Well. Venture Oil and Gas, LLC should be able to meet the applicable state and federal regulations associated with this facility.

Harlotte M. Bolden-Wright
Industrial Minerals Section
Energy Branch

June 23, 2010
Draft Date

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Black Stone 4-4 No. 1 Oil and Gas Production Facility
Facility No.: 502-0095

ATTACHMENT A:

CALCULATIONS

Black Stone 4-4 No. 1 Oil and Gas Production Facility

Facility No.: 502-0095

Part A –FLARE CALCULATIONS

The flare calculations are based on continuous flaring of full well stream to determine the potential emissions. Renaissance Petroleum Company provided the information found in Table A-1 in their permit application. The rated heat capacity would be determined in Equation I by using the gas flowrate and heat content provided in Table A-1.

Flowrate *(scf/hr)*	**Heat Content** *(Btu/scf)*	**H_2S** *(mole %)*	**Rated Heat Capacity** *(MMBtu/hr)*
34,980	1,066	4.0	37.29

Table A-1: Gas Analysis Data

$$Rated\ Heat\ Capacity\left(\frac{MMBtu}{hr}\right) = Flowrate\left(\frac{scf}{hr}\right) * Heat\ Content\left(\frac{Btu}{scf}\right) * \left(\frac{MMBtu}{10^6\ Btu}\right)$$

[Equation I]

- Calculating NO_X and CO

The AP-42 Emission Factors for flares found in Table 13.5-1 of the Industrial Flares Section are shown in Table A-2. These emission factors would be used to determine the CO and NO_X emissions.

Flare AP-42 Emission Factors *(lb/MMBtu)*	
NO_X	**CO**
0.068	0.37

Table A-2: AP-42 Emission Factors for Flares

Equation II would be used to determine the CO and NO_X emissions produced from the flare. The rated heat capacity and AP-42 emission factors are found in Tables A-1 and A-2, respectively.

$$Emissions\left(\frac{lb}{hr}\right) = Rated\ Heat\ Capacity\left(\frac{MMBtu}{hr}\right) * AP-42\ Emission\ Factor\left(\frac{lb}{MMBtu}\right)$$

[Equation II]

Table A-3 shows the potential NO_X and CO emissions from the flare.

Potential NO_X and CO Emissions			
(lb/hr)		*(Ton/year)*	
NO_X	**CO**	**NO_X**	**CO**
2.54	13.8	11.1	60.4

Table A-3: Potential NO_X and CO Emissions

♦ Calculating SO_2 Emissions

The facility estimates that the gas stream contains 4 mol% of H_2S; therefore, the sulfur dioxide (SO_2) emissions from the flare would be calculated using Equation III.

$$Amount\ of\ SO_2\left(\frac{lb}{hr}\right) = 1.689\left(\frac{lb}{Mscf}\right) * H_2S\,(mole\%) * Flowrate\left(\frac{Mscf}{hr}\right)$$

[Equation III]

$$= 1.689\left(\frac{lb}{Mscf}\right) * 4\ mole\%\ H_2S * 34.98\frac{Mscf}{hr} = 236\frac{lb}{hr}$$

♦ Calculating VOC Emissions

The following was provided in the permit application:

a. the gas molecular weight (*MW*) = 5.682 lb/lb-mol
b. the VOC mass fraction = 0.1079

The assumption is made that the emergency flare has a 98% destruction efficiency.

The potential VOC emissions would be calculated using Equation IV where the flowrate is given in Table A-1.

$$VOC\ Emissions\left(\frac{lb}{hr}\right) = \left(\frac{Flowrate\left(\frac{scf}{hr}\right) * MW\left(\frac{lb}{lb\text{ - }mol}\right)}{380\ \frac{scf}{lb\text{ - }mol}}\right) * VOC\ wt.\ fraction * (1 - 0.98)$$

[Equation IV]

$$= \left(\frac{34{,}980 \, \frac{scf}{hr} * 5.682 \, \frac{lb}{lb\text{ - }mol}}{380 \, \frac{scf}{lb\text{ - }mol}} \right) * 0.1079 * (1 - 0.98) = 1.13 \frac{lb}{hr}$$

- Total Potential Emissions from the Flare

Table A-4 shows the total potential emissions for the flare assuming constant flaring. The emissions are converted to tons per year by multiplying by a conversion factor of 4.38. The expected emissions are determined using the same equations; however, these emissions are based on the limited flow rate of 8,279 scf/hr.

Flare Potential Emissions *(Ton/yr)*			
SO_2	**NO_X**	**CO**	**VOC**
1,035.10	**11.11**	**60.44**	**4.94**

Table A-4: Total Potential Emissions from the Flare

Part B –HEATER CALCULATIONS

The emissions from the 0.5 MMBtu/hr line heater and 0.5 MMBtu/hr heater treater are based on the facility burning propane with a heat content of 1,066.1 Btu/scf and which contains 4 mol % H_2S. AP-42 emission factors found in Section 1.5 for Liquefied Petroleum Gas Combustion would be used to calculate emissions from these units. The emissions factors are listed in Table B-1.

AP-42 Emission Factors *($lb/10^3$ gal)*				
PM	**SO_2**	**NO_X**	**CO**	**VOC**
0.4	0.10(S)	14	1.9	5.5

Table B-1: AP-42 Emission Factors for NG Combustion Sources

♦ Calculating PM, NO_X, CO and VOC Emissions

Equation V will be used to calculate PM, NO_X, CO and VOC emissions from the heater treater and the line heater.

$$Emissions\left(\frac{lb}{hr}\right) = \frac{\left(AP\text{ - }42\ Factor\ (lb/\ 10^3\ gal)\right) * \left(Rated\ Heat\ Capacity\ (MMBTU/\ hr)\right)}{\left(91.5\ MMBTU/\ 10^3\ gal\right)}$$

[Equation V]

Since the emission factors in AP-42 are given on a volume basis ($lb/10^3$ gal), a heating value of 91.5 $MMBtu/10^3$ gal for propane would be used to convert to an energy basis (lb/MMBtu).

♦ Calculating SO_2 Emissions

SO_2 emission would be based on the amount of sulfur in the fuel. S in Table B-1 equals the sulfur content expressed in gr/100 ft^3 gas vapor. The facility stated in the permit application that the propane used would not contain any sulfur.

Table B-2 summarizes the potential emissions from the heaters. The calculated emissions are converted to units of tons per year by multiplying by a conversion factor of 4.38.

	Heaters Potential Emissions *(Ton/yr)*				
Unit	**PM**	**SO_2**	**NO_X**	**CO**	**VOC**
0.5 MMBtu/hr Heater Treater	0.01	0	0.34	0.05	0.01
0.5 MMBtu/hr Line Heater	0.01	0	0.34	0.05	0.01

Table B-2: Potential Emissions from Heaters

Black Stone 4-4 No. 1 Oil and Gas Production Facility
Facility No.: 502-0095

Part C–FACILITY WIDE EMISSIONS

The potential emissions from the Black Stone 4-4 No. 1 Oil and Gas Production Well are found in Table C-1.

	Potential Facility-Wide Emissions (Tons/yr)				
	PM	**SO_2**	**NO_X**	**CO**	**VOC**
Line Heater	0.01	0	0.34	0.05	0.01
Heater Treater	0.01	0	0.34	0.05	0.01
Process Flare	-	1,035.10	11.11	60.44	4.94
Total PTE	**0.02**	**1,035.1**	**11.79**	**60.54**	**4.96**

Table C-1: Potential Emissions from the Black Stone Well

The expected emissions are found in Table C-2. The facility requested a 245 TPY limit on SO_2 emissions.

	Expected Facility-Wide Emissions (Tons/yr)				
	PM	**SO_2**	**NO_X**	**CO**	**VOC**
Line Heater	0.01	0	0.34	0.05	0.01
Heater Treater	0.01	0	0.34	0.05	0.01
Process Flare	-	245	2.63	14.3	1.17
Total PTE	**0.02**	**245***	**3.31**	**14.4**	**1.19**

Table C-2: Expected Emissions from the Black Stone Well

Black Stone 4-4 No. 1 Oil and Gas Production Facility
Facility No.: 502-0095

ATTACHMENT B:

DRAFT PROVISOS

AIR PERMIT

PERMITTEE: VENTURE OIL AND GAS, LLC

FACILITY NAME: BLACK STONE 4-4 NO. 1 OIL & GAS PRODUCTION WELL

LOCATION: NW/4 SECTION 4, TOWNSHIP 2 NORTH, RANGE 5 EAST, ATMORE, ESCAMBIA COUNTY, AL

PERMIT NUMBER	DESCRIPTION OF EQUIPMENT, ARTICLE OR DEVICE

502-0095-X001	**FACILITY-WIDE EMISSION SOURCES**
	• One (1) 0.5 MMBTU/hr Line Heater
	• One (1) 0.5 MMBTU/hr Heater Treater
	• Emergency Flare with Closed Vent System
	• Storage Tanks with Vapor Recovery Unit
	  o Three (3) 16,800 Gallon Crude Oil Tanks
	  o One (1) 16,800 Gallon Saltwater Tank
	  o One (1) 16,800 Gallon Fresh Water Tank
	  o One (1) 21,000 Gallon Power Oil Tank

In accordance with and subject to the provisions of the Alabama Air Pollution Control Act of 1971, as amended, Ala. Code §§22-28-1 to 22-28-23 (2006 Rplc. Vol. and 2007 Cum. Supp.) (the "AAPCA") and the Alabama Environmental Management Act, as amended, Ala. Code §§22-22A-1 to 22-22A-15 (2006 Rplc. Vol. and 2007 Cum. Supp.), and rules and regulations adopted there under, and subject further to the conditions set forth in this permit, the Permittee is hereby authorized to construct, install and use the equipment, device or other article described above.

ISSUANCE DATE: Draft 7/2/2010

Alabama Department of Environmental Management

Venture Oil and Gas, Inc.
Black Stone 4-4 No. 1 Oil and Gas Production Facility
ESCAMBIA COUNTY, ALABAMA
(PERMIT NO. 502-0095-X001)
PROVISOS

1. This permit is issued on the basis of Rules and Regulations existing on the date of issuance. In the event additional Rules and Regulations are adopted, it shall be the permit holder's responsibility to comply with such rules.

2. This permit is not transferable. Upon sale or legal transfer, the new owner or operator must apply for a permit within 30 days.

3. A new permit application must be made for new sources, replacements, alterations or design changes which may result in the issuance of, or an increase in the issuance of, air contaminants, or the use of which may eliminate or reduce or control the issuance of air contaminants.

4. Each point of emission will be provided with sampling ports, ladders, platforms, and other safety equipment to facilitate testing performed in accordance with procedures established by Part 60 of Title 40 of the Code of Federal Regulations, as the same may be amended or revised.

5. In case of shutdown of air pollution control equipment for scheduled maintenance for a period greater than **1 hour,** the intent to shut down shall be reported to the Air Division at least 24 hours prior to the planned shutdown, **unless accompanied by the immediate shutdown of the emission source.**

6. In the event there is a breakdown of equipment in such a manner as to cause increased emission of air contaminants for a period greater than **1 hour**, the person responsible for such equipment shall notify the Air Division within an additional 24 hours and provide a statement giving all pertinent facts, including the duration of the breakdown. The Air Division shall be notified when the breakdown has been corrected.

7. This process, including all air pollution control devices and capture systems for which this permit is issued, shall be maintained and operated at all times in a manner so as to minimize the emissions of air contaminants. Procedures for ensuring that the above equipment is properly operated and maintained so as to minimize the emission of air contaminants shall be established.

8. This permit expires and the application is cancelled if construction has not begun within 24 months of the date of issuance of the permit.

9. On completion of construction of the device for which this permit is issued, notification of the fact is to be given to the Chief of the Air Division. Authorization to operate the unit must be received from the Chief of the Air Division. Failure to notify the Chief of the Air Division of completion of construction and/or operation without authorization could result in revocation of this permit.

10. Submittal of other reports regarding monitoring records, fuel analyses, operating rates, and equipment malfunctions may be required as authorized in the Department's air pollution control rules and regulations. The Department may require stack emission testing at any time.

11. Additions and revisions to the conditions of this Permit will be made, if necessary, to ensure that the Department's air pollution control rules and regulations are not violated.

12. Nothing in this permit or conditions thereto shall negate any authority granted to the Air Division pursuant to the Alabama Environmental Management Act or regulations issued thereunder.

13. The Air Division must be notified in writing at least 10 working days in advance of all emission tests to be conducted and submitted as proof of compliance with the Department's air pollution control rules and regulations.

    To avoid problems concerning testing methods and procedures, the following shall be included with the notification letter:

    (a) The date the test crew is expected to arrive, the date and time anticipated of the start of the first run, how many and which sources are to be tested, and the names of the persons and/or testing company that will conduct the tests.

    (b) A complete description of each sampling train to be used, including type of media used in determining gas stream components, type of probe lining, type of filter media, and probe cleaning method and solvent to be used (if test procedure requires probe cleaning).

    (c) A description of the process(es) to be tested, including the feed rate, any operating parameter used to control or influence the operations, and the rated capacity.

    (d) A sketch or sketches showing sampling point locations and their relative positions to the nearest upstream and downstream gas flow disturbances.

    A pretest meeting may be held at the request of the source owner or the Department. The necessity for such a meeting and the required attendees will be determined on a case-by-case basis.

    All test reports must be submitted to the Air Division within 30 days of the actual completion of the test, unless an extension of time is specifically approved by the Air Division.

14. This permit is issued with the condition that, should obnoxious odors arising from the plant operations be verified by Air Division inspectors, measures to abate the odorous emissions shall be taken upon a determination by the Alabama Department of Environmental Management that these measures are technically and economically feasible.

15. Precautions shall be taken to prevent fugitive dust emanating from plant roads, grounds, stockpiles, screens, dryers, hoppers, ductwork, etc.

16. Plant or haul roads and grounds will be maintained in the following manner so that dust will not become airborne. A minimum of one, or a combination, of the following methods shall be utilized to minimize airborne dust from plant or haul roads and grounds:

    (a) by the application of water any time the surface of the road is sufficiently dry to allow the creation of dust emissions by the act of wind or vehicular traffic;

    (b) by reducing the speed of vehicular traffic to a point below that at which dust emissions are created;

    (c) by paving;

    (d) by the application of binders to the road surface at any time the road surface is found to allow the creation of dust emissions;

    Should one, or a combination, of the above methods fail to adequately reduce airborne dust from plant or haul roads and grounds, alternative methods shall be employed, either exclusively or in combination with one or all of the above control techniques, so that dust will not become airborne. Alternative methods shall be approved by the Department prior to utilization.

17. This process shall be operated at all times in a manner so as to minimize the emission of air contaminants. Procedures for ensuring that the process is properly operated and maintained so as to minimize the emission of air contaminants shall be established.

18. The permittee shall not use as a defense in an enforcement action that maintaining compliance with conditions of this permit would have required halting or reducing the permitted activity.

19. The issuance of this permit does not convey any property rights of any sort, or any exclusive privilege.

20. The 0.5 MMBtu/hr heater treater and 0.5 MMBtu/hr line heater shall each meet the following emission allowables:

    (a) Particulate Matter (PM) emissions shall not exceed 0.5 lb/MMBtu.

    (b) Sulfur Dioxide (SO_2) emissions shall not exceed 4.0 lb/MMBtu.

21. Sulfur dioxide (SO_2) emissions from the emergency flare shall not exceed 245 tons per 12 consecutive months.

22. To demonstrate compliance with proviso 21 of this permit the total volume that can be sent to the emergency flare shall not exceed 72.5 million standard cubic feet per

twelve consecutive months (MMscf/12 consecutive months) based on a hydrogen sulfide (H_2S) content of 40,000 parts per million volume (ppmv).

23. The emergency flare shall not be operated as a continuous operating process flare.

24. All process gas streams containing 0.10 of a grain of hydrogen sulfide per Scf shall be burned to the extent that the ground level concentrations of hydrogen sulfide shall be less than twenty (20) parts per billion beyond plant property limits, averaged over a thirty (30) minute period.

25. Compliance with proviso 24 of this permit shall be demonstrated by complying with the requirements specified in proviso 25(a) through (c) of this permit.

(a) Except as provided for in proviso 25(a)(2), each process gas stream that has to vented to the atmosphere shall be captured and sent through a closed vent system to the emergency flare to be combusted.

(1) Compliance shall be demonstrated by conducting a process flow design evaluation of each site in conjunction with visible inspection of each.

(2) Except when vessels and equipment are being de-pressured and/or emptied and the reduced pressure will not allow flow of the gas to the flare, the venting to the atmosphere of any process gas stream shall not occur for a duration in excess of 15 continuous minutes.

(b) Maintaining the maximum H_2S feedrate to the emergency flare at less than 500 lb/hr.

(c) Testing each process gas stream that may be sent to the emergency flare as specified in proviso 25 (c)(1) through (4) of this permit.

(1) Determine the H_2S content for each process gas that can be sent to the emergency flare as follows:

(i) Capture one representative sample of the stream at a frequency of no less than once each month.

(ii) Analyze the sample collected utilizing the Tutwiler procedures in 40 CFR §60.648, chromatographic analysis procedures found in ASTM E-260, the stain tube procedures found in GPA 2377-86 or those provided by the stain tube manufacturer, or other methods and procedures approved by the Department.

[SG Stream (H_2S Mole %)]

(2) Determine the Btu content for each process gas that can be sent to the emergency flare as follows:

(ii) Capture one representative sample of the stream at a frequency of no less than once each month.

(iii) Analyze the sample for its Btu content by utilizing the ASTM Analysis Method D1826-77 or other equivalent method.

[SG Stream (BTU/Scf)]

(3) Provided multiple process streams can be sent to the emergency flare and it is possible to capture a common stream whose contents would be representative of all the streams, that common stream may be used instead of the individual process streams.

(4) The frequency of testing may be modified upon receipt of Departmental approval.

26. Monitoring to demonstrate compliance with proviso 24 of this permit shall be met by maintaining the presence of a spark or flame at the flare tip at all times a process gas stream may be sent to the emergency flare.

27. To demonstrate compliance with proviso 26 of this permit, a daily visual inspection of the emergency flare shall be conducted as specified in proviso 27 (a) through (c), except on days when the facility is not being manned by plant personnel or when process gas can not be sent to the emergency flare.

(a) Visual inspections shall be made from a location that provides the best view of the flare tip and/or flare pilot lights or flare igniter.

(b) A record of the time, date, and results of each visual inspection of the flare shall be maintained.

(c) Provided that a spark or flame is not present at the flare tip when process gas can be sent to the flare, a record of the time, date, duration, and corrective actions taken for each incident shall be maintained.

28. When possible and practicable, a continuous metering system shall be utilized that is capable of continuously monitoring and recording the flow rate of each sour gas stream that is to be vented to the flare prior to entry into the flare.

(a) The continuous measurement may be made with a single meter through which all of the sour gas steams flow, or with multiple meters through which an individual sour gas stream or multiple sour gas streams flow.

(1) Calibration, maintenance and operation of metering system shall be performed in accordance to manufacturer's specification.

(b) Volumetric flow of sour gas streams that are not continuously measured shall be accounted for by utilizing special estimating methods (i.e. engineer estimates, material balance, computer simulation, special testing, etc).

29. The emergency flare shall meet the opacity standards specified in proviso 29(a) and (b) of this permit.

(a) Except for one 6-minute period during any 60-minute period, the flare shall not discharge into the atmosphere particulate that results in an opacity greater than 20%, as determined by a 6-minute average.

(b) At no time shall the flare discharge into the atmosphere particulate that results in an opacity greater than 40%, as determined by a 6-minute average.

30. Compliance with proviso 29 of this permit shall be demonstrated by performing a daily visual inspection of the flare as specified in provisos 27 (a) and (b) of this permit.

31. Provided that the opacity standards found in proviso 29 of this permit are exceeded during the daily visual inspection of the flare, a visible emission observation shall be conducted as specified in provisos 31 (a) through (d) of this permit.

(a) 40 CFR Part 60 Appendix A Method 9 or 40 CFR Part 60 Appendix A Method 22 or other methods and procedures approved by the Department shall be utilized to perform the daily visible emission observations.

(1) Visible emission observations utilizing Method 9 shall be conducted by an observer certified in Method 9 methods and procedures.

(2) Visible emission observations utilizing Method 22 shall be conducted by an observer that is familiar with Method 22 methods and procedures.

(3) Visible emissions that are observed utilizing Method 22 shall be deemed to have a reading in excess of 20% opacity and visible emission shall not be observed for more than one 6-minute period within a 60-minute observation period.

(4) Visible emission observations shall be conducted during daylight hours.

(b) The duration of each observation shall be no less than fifteen consecutive minutes.

(c) Provided visible emission are observed in excess of the opacity standards, immediate corrective measures shall be undertaken to eliminate the visible emissions.

(d) A record of the time, date, duration, and immediate corrective actions taken to eliminate visible emissions shall be maintained.

32. The following records shall be maintained on a monthly basis and kept in a form suitable for inspection:

(a) Volume of gas burned in flare=

[Stream Volume Burned (MScf/Month)]

(b) Total Volume Burned in Flare (MScf/12 Consecutive Months)=

[Current Month Stream Volume Burned (MScf/Month)] + Σ [Previous 11 Months Stream Volume Burned (MScf/11 Months)]

(c) Stream (MMBtu/Month)=

[Stream Volume Burned (MScf/Month)] X [Stream (Btu/Scf)] X {1 MMScf/1,000 MScf }

(d) Stream H_2S (Lbs/Month) =

[Stream Volume Burned (MScf/Month)] X { 1,000 Scf/MScf } X {1 lb-mol/380 Scf}] X [{SG Stream (H_2S Mole%)}/{100}] X [34 Lbs. H_2S/lb-mol H_2S]

(e) Flare H_2S (Lbs/Month) =

Σ Stream H_2S (Lbs/Month)

(f) Number of hours flare operated=

[Flare (Hours/Month)]

(g) Flare H_2S feed (Lbs/Hour) =

$$\frac{\text{Flare } H_2S \text{ (Lbs/Month)}}{\text{Flare (Hours/Month)}}$$

(h) Flare SO_2 Emissions (Lbs/Month)=

{1.689 Lbs of SO_2/MScf} X [SG Stream H_2S (Mole %)] X [Stream Volume Burned (MScf/Month)]

(i) Flare SO_2 Emissions (Tons/Month)=

Flare SO_2 Emissions (Lbs/Month) X {1 Ton/2,000 Lbs}

(j) Flare SO_2 Emissions (Tons/12 Consecutive Months)=

Σ Current Month SO_2 Emissions (Tons/Month) + Σ Previous 11 Months SO_2 Emissions (Tons/Month)

(k) Records of each daily visual inspections of the emergency flare tip for the presence of a spark or flare.

(l) Records of each daily visual inspection of the emergency flare for visible emissions.

(m) Record of each occurrence when a visible emission observation was performed on the emergency flare.

(n) Record of the date, starting time, duration, and cause of each occurrence of flaring.

(i) Record of the date, starting time and duration of each deviation from the requirements specified in this permit along with the cause and corrective actions taken.

33. The frequency of recordkeeping may be modified upon receipt of Department approval.

34. All records shall be maintained in a permanent form suitable for inspection and shall be retained for at least two (2) years following the date of each occurrence, including the occurrence and duration of any startup, shutdown, or malfunction in the operation of the process equipment and any malfunction of the air pollution control equipment.

35. Periodic monitoring reports meeting the following requirements shall be submitted to the Department:

(a) Report contents shall be:

(1) A summary of the monthly records kept per proviso 32 of this permit

OR

(2) As otherwise approved by the Department

(b) Reporting frequency shall be:

(1) Quarterly,

OR

(2) As otherwise approved by the Department

(d) Each report shall be submitted on the following reporting schedule:

Reporting Period	Submittal Date
January 1st through March 30th	April 30th
April 1st through June 30th	July 31st
July 1st through September 30th	October 31st
October 1st through December 31st	January 31st

36. All deviations from requirements within this permit shall be reported to the Department within 48 hours of the deviation or by the next work day while providing a statement with regards to the date, time, duration, cause and corrective actions taken to bring the sources back into compliance. A review and evaluation of this report shall be utilized in Departmental determination of whether or not a violation of a permit requirement(s) occurred.

37. Within one year from the date the facility commences operation, an application for a Major Source Operating Permit (MSOP) shall be submitted to the Department.

July 2, 2010
Draft Date